

**BEST AVAILABLE COPY****INTERNATIONAL SEARCH REPORT**International Application No  
PCT/IB2004/001996

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 H02M3/156 H02M1/00 H03K17/28

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H02M H03K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 680 056 A (CENTRE NAT RECH SCIENT) 5 February 1993 (1993-02-05) abstract page 9, line 8 - line 13 figures 1,5	1-8, 10-16,18
A	US 5 930 132 A (SATO ATSUSHI ET AL) 27 July 1999 (1999-07-27) abstract from column 1, line 65 up tp column 2, line 14 figure 1	1-18
X, P	US 2003/231011 A1 (TAKEMURA KO ET AL) 18 December 2003 (2003-12-18) abstract paragraph '0032! figures 1,2A,2B	1,6-8, 11-14

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## ° Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the International search report

12 October 2004

19/10/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax. (+31-70) 340-3016

Authorized officer

Marannino, E.

**BEST AVAILABLE COPY****INTERNATIONAL SEARCH REPORT**

International Application No

PCT/IB2004/001996

**C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 381 160 B1 (DUERBAUM THOMAS ET AL) 30 April 2002 (2002-04-30) abstract column 3, line 37 – line 51 column 6, line 31 – line 60 figure 2 -----	1,14

**BEST AVAILABLE COPY****INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/IB2004/001996

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
FR 2680056	A	05-02-1993	FR EP WO	2680056 A1 0550731 A1 9303537 A1		05-02-1993 14-07-1993 18-02-1993
US 5930132	A	27-07-1999	JP	11041078 A		12-02-1999
US 2003231011	A1	18-12-2003	JP CN	2004023846 A 1470968 A		22-01-2004 28-01-2004
US 6381160	B1	30-04-2002	DE EP JP	19925490 A1 1063759 A1 2001008444 A		07-12-2000 27-12-2000 12-01-2001